Edition: BP 2025 (Ph. Eur. 11.6 update)

Canine Parvovirus Vaccine, Living

General Notices

(Canine Parvovirosis Vaccine (Live), Ph. Eur. monograph 0964)

Ph Eur

1 DEFINITION

Canine parvovirosis vaccine (live) is a preparation of a suitable strain of canine parvovirus. This monograph applies to vaccines intended for the active immunisation of dogs against canine parvovirosis.

2 PRODUCTION

2-1 PREPARATION OF THE VACCINE

The vaccine virus is grown in cell cultures.

2-2 SUBSTRATE FOR VIRUS PROPAGATION

2-2-1 Cell cultures

The cell cultures comply with the requirements for cell cultures for the production of vaccines for veterinary use (*5.2.4*).

2-3 CHOICE OF VACCINE VIRUS

The vaccine virus is shown to be satisfactory with respect to safety (*5.2.6*) and efficacy (*5.2.7*) for the dogs for which it is intended.

The following tests for safety (section 2-3-1), increase in virulence (section 2-3-2) and immunogenicity (section 2-3-3) may be used during the demonstration of safety and efficacy.

2-3-1 Safety

Carry out the test for each route and method of administration to be recommended for vaccination, using in each case dogs of the minimum age to be recommended for vaccination. Use vaccine virus at the least attenuated passage level that will be present in a batch of the vaccine.

2-3-1-1 General safety. For each test, use not fewer than 5 dogs that do not have haemagglutination-inhibiting antibodies against canine parvovirus. A count of white blood cells in circulating blood is made on days 4, 2 and 0 before injection of the vaccine virus. Administer to each dog a quantity of the vaccine virus equivalent to not less than 10 times the maximum

virus titre likely to be contained in 1 dose of the vaccine. Observe the dogs at least daily for at least 14 days. A count of white blood cells in circulating blood is made on days 3, 5, 7 and 10 after the injection.

The test is not valid if a diminution in the number of circulating white blood cells greater than 50 per cent of the initial number - determined as the average of the 3 values found before injection of the vaccine virus – is noted. The vaccine virus complies with the test if no dog shows abnormal local or systemic reactions, signs of disease or dies from causes attributable to the vaccine virus and if, for each dog and each blood count, after vaccination, the number of leucocytes is not less than 50 per cent of the initial value.

2-3-1-2 Effects on the thymus. The dogs used to evaluate the effects on the thymus are also used in the test for general safety (section 2-3-1-1). Use not fewer than 4 dogs that do not have haemagglutination-inhibiting antibodies against canine parvovirus. Maintain not fewer than 4 other dogs that do not have haemagglutination-inhibiting antibodies against canine parvovirus as controls. Observe all the dogs at least daily. After 14 days following the administration of the vaccine virus, euthanise 2 dogs from each group and after 21 days, the remaining dogs from each group. Carry out histological examination of the thymus of each dog.

The vaccine virus complies with the test if there is no more than slight hypoplasia of the thymus after 14 days and no damage is evident after 21 days.

2-3-2 Increase in virulence

Carry out the test according to general chapter *5.2.6* using dogs of the minimum age to be recommended for vaccination, that do not have haemagglutination-inhibiting antibodies against canine parvovirus. If the properties of the vaccine virus allow sequential passage through 5 groups via natural spreading, this method may be used, otherwise passage as described below is carried out.

Administer to each dog of the 1st group by a route to be recommended a quantity of the vaccine virus that will allow recovery of virus for the passages described below. Collect the faeces from each dog from the 2nd to the 10th day after administration of the virus, check them for the presence of the virus and pool the faeces containing virus. Administer 1 mL of the suspension of pooled faeces by the oronasal route to each dog of the next group. Carry out this passage operation not fewer than 4 times; verify the presence of the virus at each passage. If the virus is not found at a passage level, repeat the passage by administration to a group of 10 dogs.

If the 5th group of dogs shows no evidence of an increase in virulence indicative of reversion during the observation period, further testing is not required. Otherwise, carry out an additional safety test and compare the clinical signs and any relevant parameters in a group of at least 8 dogs receiving the material used for the 1st passage and another similar group receiving the virus at the final passage level.

The vaccine virus complies with the test if no indication of increased virulence of the virus recovered for the final passage compared with the material used for the 1st passage is observed; account is taken, notably, of the count of white blood cells, of results of histological examination of the thymus and of the titre of excreted virus. If virus is not recovered after an initial passage in 2 dogs and a subsequent repeat passage in 10 dogs, the vaccine virus also complies with the test.

2-3-3 Immunogenicity

A test is carried out for each route and method of administration to be recommended using in each case dogs of the minimum age to be recommended for vaccination. The quantity of vaccine virus to be administered to each dog is not greater than the minimum virus titre to be stated on the label and the virus is at the most attenuated passage level that will be present in a batch of vaccine.

Use for the test not fewer than 7 dogs that do not have haemagglutination-inhibiting antibodies against canine parvovirus. Vaccinate not fewer than 5 dogs. Maintain not fewer than 2 dogs as controls. Challenge each dog after 20-22 days by the oronasal route with a sufficient quantity of a suspension of virulent canine parvovirus. Observe the dogs at least daily for 14 days after challenge. At the end of the observation period, carry out a haemagglutination test for and titration of the virus in the faeces.

The test is not valid if fewer than 100 per cent of the control dogs show typical signs of the disease and/or leucopenia and excretion of the virus.

The vaccine virus complies with the test if all the vaccinated dogs survive and show no sign of disease nor leucopenia and if the maximum titre of virus excreted in the faeces is less than 1/100 of the geometric mean of the maximum titres found in the controls.

3 BATCH TESTS

3-1 Identification

The vaccine virus is identified and differentiated from feline parvovirus using a suitable method, for example, an immunofluorescence or an immunostaining test in susceptible cell cultures using specific monoclonal antibodies.

3-2 Bacteria and fungi

The vaccine, including where applicable the diluent supplied for reconstitution, complies with the test for sterility prescribed in the general monograph *Vaccines for veterinary use (0062)*.

3-3 Mycoplasmas (*2.6.7*)

The vaccine complies with the test for mycoplasmas.

3-4 Extraneous agents (*5.2.5*)

The vaccine is free from extraneous agents.

3-5 Virus titre

Titrate the vaccine virus by inoculation into suitable cell cultures. The vaccine complies with the test if one dose contains not less than the minimum virus titre stated on the label.

3-6 Potency

The vaccine complies with the requirements of the test prescribed under Immunogenicity (section 2-3-3) when administered by a recommended route and method. It is not necessary to carry out the potency test for each batch of the vaccine if it has been carried out on a representative batch using a vaccinating dose containing not more than the minimum virus titre stated on the label.